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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/385,181	08/30/1999	EDWARD RIEGELSBERGER	ARELP103	8804

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VAN PELT & YI LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

EXAMINER

FLANDERS, ANDREW C

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 09/25/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/385,181

Applicant(s)

RIEGELBERGER, EDWARD

Examiner

Andrew C Flanders

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 54 (Direct path sample rate converter in Fig.4) and 74 (Calculate estimated delay error step in Fig 6). Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: part 50 is referred to as a "direct path tap" on page 17, line 2 and a "direct path signal" on page 17 line 9. Referring to part 52, it is referred to as a "reflection tap" on page 17 line 2 and a "reflection signal" on page 17 line 9. Referring to part 24, it is referred to as a "delay line" on page 18 lines 3 and 4 and a "tap line" on page 18 line 6.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 5, 6, 7, 8, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (US Patent 5,781,461) in view of Anonymous (Research Disclosure 371051).

5. Regarding claim 1 Jaffe discloses a method of changing delay time intervals (col. 7 lines 44 – 46) between two readers for reading data at corresponding positions of the delay line (col. 4 lines 16 – 20) (i.e. a first audio signal generated from a buffer, a second audio signal generated from a buffer, and a method of adjusting a time delay between first audio signal/first data stream and a second audio signal/second data stream), a sampled data delay line (col. 4 line 16) (i.e. buffer), and an interpolator (col. 6 lines 8 – 10) (i.e. a sample rate converter). Therefore Jaffe anticipates all elements of Claim 1 except for changing one of the consumption rates to provide an adjusted time delay. Anonymous discloses a method to achieve an adjustable time delay by changing the output rate of a FIFO buffer (paragraph 2 of the Basic Abstract). It would be obvious to one of ordinary skill in the art to modify Jaffe's delay method with anonymous' teachings to alter the consumption rate in order to change the

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delay. One would be motivated to do this to allow Jaffe's system to provide a variety of effects including delay, reverberation, vibrato, chorus, flange, or other special effects (Jaffe - col. 6 lines 12 – 14).

6. All elements of Claim 12 are comprehended by Claim 1, and it is rejected on the same grounds.

7. Regarding Claim 4, in addition to the elements stated above in Claim 1, Anonymous discloses using interpolation between samples (as customary in sample-rate conversion techniques) (paragraph 2 of the Basic Abstract) (i.e. interpolating data samples of the data streams to convert the consumption rates to the output sample rate). One of ordinary skill in the art at the time of the invention would be motivated to use interpolation to change the consumption rates to the output rates in order to obtain a smooth transition between the signals of different sample rates.

8. Regarding Claims 5, 6, and 7, in addition to the elements stated above in Claim 1, Anonymous discloses a method to achieve an adjustable time delay by changing the output rate of a FIFO buffer (paragraph 2 of the Basic Abstract) (i.e. changing the consumption rate to increase or decrease the rate of time delay). It would have been obvious to one skilled in the art at the time of the invention to change consumption rates as taught by Anonymous to the delay system taught by Jaffe for the purpose of adjusting a time delay.

9. Regarding Claim 8, in addition to the elements stated above in claim 1, Jaffe discloses a sampled data delay line with two readers for reading data at

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corresponding positions of the delay line (col. 4 lines 16 – 18) (i.e. first and second consumption rates are the same prior to changing).

10. Regarding Claim 14 in addition to the elements stated above in claim 12, Jaffe discloses a sampled data delay line with two readers for reading data at corresponding positions of the delay line (col. 4 lines 16 – 18) (i.e. first and second audio samples output from a buffer with an initial time delay

11. Regarding Claim 15, in addition to the elements stated above in claim 12, Jaffe discloses readers that can be virtually any device for generating a steady or time varying note from data read from the delay line structure (col. 6 lines 6 – 8) (i.e. comprising a queue to receive samples from the buffer and transmit them to the sample rate converter).

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (US Patent 5,781,461) in view of Anonymous (Research Disclosure 371051) as applied to claim 1 above and further in view of Yoshida (US Patent 6,477,255).

13. Regarding Claim 2, as stated above in claim 1 the combination of Jaffe and Anonymous makes obvious all elements except wherein a first data stream represents a direct path signal and a second data stream represents a reflected signal, and calculating the adjusted time delay based on the propagation delay between the two signals. Yoshida discloses a direct sound from stereophonic loudspeakers and a reflected sound (col. 5 lines 33 and 34) (i.e. a direct path signal and a reflected signal). Yoshida also discloses a system wherein the time difference of the delay means is obtained based on the time difference between

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a first propagation delay time and a second propagation delay time (col. 10 lines 20 – 24) (i.e. calculating the adjusted time delay based on the difference between propagation delay of the direct path signal and reflected signal). One of ordinary skill in the art at the time of the invention would be motivated to calculate the time delay between two signals, a reflected and a direct path signal to create an adjustable delay to further control various sound effects taught by Jaffe (Jaffe – col. 6 lines 12 – 14).

14. Claims 3, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (US Patent 5,781,461) in view of Anonymous (Research Disclosure 371051) and in further view of Rossum (US Patent 6,138,207).

15. Regarding Claim 3, as stated above in claim 1 the combination of Jaffe and Anonymous makes obvious all elements except wherein the buffer is located on a host computer and said data streams are received on the sound card. Rossum discloses a computer system which includes a main memory (Fig. 1, reference 18) (i.e. a buffer located on a host computer), a sound card (Fig 1, reference 12) capable of receiving a PCI data stream (Fig. 1, reference 14) (i.e. receiving an audio stream or data stream on a sound card). One of ordinary skill in the art at the time of the invention would be motivated to have an audio board be able to share the memory (i.e. buffer) of the computer system rather than having its own memory in order to reduce the need for costly onboard audio memory (col. 1 lines 58 – 59).

16. Regarding Claim 13 as stated above in claim 12 the combination of Jaffe and Anonymous makes obvious all elements except wherein the buffer is located

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on a host computer and the sample rate converters are located on a sound card.

Rossum discloses a computer system which includes a main memory (Fig. 1, reference 18) (i.e. a buffer located on a host computer) and interpolating between audio samples (col. 1 line 24) (i.e. the sample rate converter on a sound card).

17. Claims 9, 10, 11, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaffe (US Patent 5,781,461) in view of Anonymous (Research Disclosure 371051) and further in view of Guo (US Patent 5,457,719).

18. Referring to claims 9, and 16, as stated above in claims 1 and 12 the combination of Jaffe and Anonymous makes obvious all elements except wherein changing the consumption rate comprises measuring the adjusted time delay, comparing it to a desired delay, and adjusting the rate of consumption until the measured output delay matches the desired delay. Guo discloses digital scheme that detects delay variations (col. 2 line 2) and a phase comparator for phase comparison between the phase shifted signal and the original (col. 2 lines 19 – 23) (i.e. measuring an adjusted time delay and comparing it to a desired delay). It would have been obvious to one of ordinary skill in the art at the time of the invention do this in order to provide reliable delay regulation (Guo col. 1. lines 63 –67).

19. Referring to claims 10 and 17 as stated above in claims 1 and 12 the combination of Jaffe and Anonymous makes obvious all elements except wherein adjusting the consumption rate comprises providing continuous feedback and correcting the consumption rate as required. Guo discloses a real time delay detection (col 2 line 15) (i.e. continuous feedback).

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20. Referring to claim 11, as stated above in claim 9 the combination of Jaffe and Anonymous makes obvious all elements except increasing or decreasing the rate for a set period of time to correct error in the measured delay. Guo discloses a method of comparing phase (col. 2 lines 19 – 23) (i.e. adjusting the consumption rate to achieve a measured delay).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C Flanders whose telephone number is (703) 305-0381. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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